REMARKS

Applicants request the Patent Office acknowledge Applicant's claim to foreign priority, and to indicate that the certified copy of the priority document, European Patent Application No. 99403274.6 dated December 23, 1999, has been made of record in the file.

Applicants thank the Patent Office for initialing the references listed on the PTO-1449 form submitted with the Information Disclosure Statement filed on December 18, 2000, thereby confirming that the listed references have been considered.

The Patent Office objects to the Abstract of the Disclosure because of excessive length. Applicants herein amend the Abstract, and submit that the Patent Office's objection has been overcome. No new matter has been added. Applicants respectfully request withdrawal of the objection to the Abstract.

The Patent Office objects to the specification under 35 U.S.C. § 112 (1st para.) as not containing terms that are "full, clear, concise and exact terms". Specifically, the Patent Office objects to " predefined first place in a downstream data packet" and "predefined second place in a downstream data packet". Applicants herein amend the specification to overcome the Patent Office's objections with respect to the confusing terms. The amendments do not add any new matter. Applicants further note that the terms "predefined first place" and "predefined second place" are discussed with reference to the ITU-T Recommendation G.983.1 at page 2, lines 3-16. Applicants submit that the Patent Office's § 112 (1st para.) objection to the specification has been overcome, and respectfully request withdrawal of same.

The Patent Office objects to the specification as containing informalities. Applicants thank the Patent Office for pointing out the informalities in the specification. Applicants herein amend the specification to remove the informalities, and no new matter has been added. Applicants submit that the Patent Office's objection to the specification has been overcome, and respectfully request withdrawal of same.

Claims 1-5 have been examined on their merits.

The Patent Office objects to claim 5 as being dependent upon a rejected base claim. Applicant thanks the Patent Office for indicating that claim 5 would be allowed if rewritten in independent form. However, instead of rewriting claim 5 in independent form, Applicant respectfully traverses the prior art rejections for the reasons set forth below.

Applicants herein add new claims 6-12. The new claims 6-12 do not add any new matter, and are fully supported by the specification as filed. Entry and consideration of the new claims 6-12 is respectfully requested.

Claims 1-12 are all the claims presently pending in the application.

1. Claims 1, 2, 3 and 5 stand objected to as containing informalities. Applicants herein amend claims 1, 2, 3 and 5 to remove the informalities. Applicants submit that the Patent Office's objection to claims 1, 2, 3 and 5 has been overcome, and respectfully request withdrawal of same.

2. Claims 1, 4 and 5 stand rejected under 35 U.S.C. § 112 (1st para.) as allegedly failing to comply with the enablement requirement. Applicants herein amend claims 1, 4 and 5 to clarify that the network terminator transmits packets when it receives its associated grant. *See, e.g.,* page 4, line 27 to page 6, line 10 of the original specification. Applicants submit that the § 112 (1st para.) rejection of claims 1, 4 and 5 has been overcome, and respectfully request withdrawal of same.

3. Claims 1-5 stand rejected under 35 U.S.C. § 112 (2nd para.) as allegedly being indefinite. Applicants herein amend claims 1-5 to more clearly claim the present invention. Applicants submit that the § 112 (2nd para.) rejection of claims 1-5 has been overcome, and respectfully request withdrawal of same.

4. Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hoebeke (U.S. Patent No. 6,463,075) in view of Stacey *et al.* (U.S. Patent No. 6,434,154). Applicants traverse the rejection of claims 1 and 3, and insofar as the rejection might apply to new claims 6-12, for at least the reasons discussed below.

The initial burden of establishing that a claimed invention is *prima facie* obvious rests on the USPTO. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). To make its *prima facie* case of obviousness, the USPTO must satisfy three requirements:

a). The prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have

motivated the artisan to modify a reference or to combine references. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988).

b). The proposed modification of the prior art must have had a reasonable expectation of success, and that determined from the vantage point of the artisan at the time the invention was made. *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209 (Fed. Cir. 1991).

c). The prior art reference or combination of references must teach or suggest all the limitations of the claims. *In re Vaeck*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991); *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, the nature of a problem to be solved. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). Alternatively, the motivation may be implicit from the prior art as a whole, rather than expressly stated. *Id.* Regardless if the USPTO relies on an express or an implicit showing of motivation, the USPTO is obligated to provide particular findings related to its conclusion, and those findings must be clear and particular. *Id.* A broad conclusionary statement, standing alone without support, is not "evidence." *Id.; see also, In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001).

In addition, a rejection cannot be predicated on the mere identification of individual components of claimed limitations. *In re Kotzab*, 217 F.3d 1365, 1371 (Fed. Cir. 2000). Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the

claimed invention, would have selected these components for combination in the manner claimed. *Id.*

The Patent Office acknowledges that Hoebeke fails to teach or suggest the transmission of a packet in a lower order timeslot if the network terminator is a lower order terminator, and transmitting a packet in one of a plurality of higher order timeslots if the network terminator is a higher order terminator. The Patent Office alleges, however, that Stacey *et al.* supplies the necessary disclosure to overcome the acknowledged deficiencies of Hoebeke.

The combination of Hoebeke and Stacey *et al.* fails to teach or suggest several of the features of the invention claimed in claim 1. The combination of Hoebeke and Stacey *et al.* fails to teach or suggest that a network terminator that transmits a packet in an upstream timeslot if it recognizes its associated grant in a non-idle grant location and the network terminator itself is a lower order network terminator. In addition, the combination of Hoebeke and Stacey *et al.* fails to teach or suggest a network terminator that transmits a packet in a second upstream timeslot if it recognizes its associated grant in an idle or a non-idle grant location and the network terminator itself is a higher order network terminator. Neither of the references, either alone or in combination, teaches or suggests the transmission of packet in defined upstream timeslots based on idle and non-idle grant locations, and whether the network terminator is a high or low order terminator. There is no disclosure within the combination of Hoebeke and Stacey *et al.* regarding idle and non-idle grant locations, and, with respect to claim 5, the Patent Office has implicitly admitted as such. Thus, Applicants submit that the Patent Office cannot fulfill the "all limitations" prong of a *prima facie* case of obviousness, as required by *In re Vaeck.*

Applicants submit that one of skill in the art would not be motivated to combine the two references. *In re Dembiczak* and *In re Zurko* require the Patent Office to provide particularized facts on the record as to why one of skill would be motivated to combine the two references. Without a motivation to combine, a rejection based on a *prima facie* case of obviousness is improper. *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998)). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308 (Fed. Cir. 1999). The Patent Office must make specific factual findings with respect to the motivation to combine references. *In re Lee*, 277 F.3d 1338, 1342-44 (Fed. Cir. 2002). Although the Patent Office provides a motivation analysis with respect to utilizing upstream bandwidth, neither Hoebeke nor Stacey *et al.* has any disclosure with respect to transmitting a packet in defined upstream timeslots based on grants located in both idle and non-idle grant locations in a downstream packet, and whether the network terminator is a high or low order terminator. Thus, Applicants submit that the Patent Office cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*.

Based on the foregoing reasons, Applicants submit that the combination of Hoebeke and Stacey *et al.* fails to teach or suggest all of the claimed elements as arranged in claim 1. Therefore, the combination of Hoebeke and Stacey *et al.* clearly cannot render the present invention obvious as recited in claim 1. Thus, Applicants submit that claim 1 is allowable, and respectfully request that the Patent Office withdraw the § 103(a) rejection of claim 1.

With respect to claim 3, Applicants submit that claim 3 allowable for at least similar reasons discussed above with respect to claim 1, in that the combination of Hoebeke and Stacey

et al. fails to teach or suggest a high order network terminator that transmits a packet in defined upstream timeslots based on grants located in both idle and non-idle grant locations in a downstream packet, and whether the network terminator is a high or low order terminator. Thus, Applicants submit that claim 3 is allowable, and respectfully request that the Patent Office withdraw the § 103(a) rejection of claim 3.

With respect to new claims 6-9, Applicants submit that claim 3 allowable for at least similar reasons discussed above with respect to claim 1, in that neither of the references, either alone or in combination, teaches or suggests the transmission of packet in defined upstream timeslots based on idle and non-idle grant locations, and whether the network terminator is a high or low order terminator.

5. Claim 2 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hoebeke. Applicants traverse the rejection claim 2, and insofar as the rejection might apply to new claims 10-12, over of Hoebeke for at least the reasons discussed below.

Hoebeke fails to teach or suggest a line terminator that inserts grants in non-idle locations if the network terminator is either a high order or a low order terminator, and that additionally inserts grants in idle locations if the network terminator is a high order terminator. There is no disclosure within Hoebeke regarding idle and non-idle grant locations, and, with respect to claim 5, the Patent Office has implicitly admitted as such. Thus, Applicants submit that the Patent Office cannot fulfill the "all limitations" prong of a *prima facie* case of obviousness, as required by *In re Vaeck.*

Applicants submit that one of skill in the art would not be motivated to modify Hoebeke. Although the Patent Office provides a motivation analysis with respect to utilizing upstream bandwidth, Applicant submit that such motivation constitutes hindsight on the part of the Patent Office, since Hoebeke discloses, *inter alia*, the Physical Layer Operation and Maintenance Cells but does not advantageously exploit those PLOAM cells as disclosed by the present invention. Thus, Applicants submit that the Patent Office cannot fulfill the motivation prong of a *prima facie* case of obviousness, as required by *In re Dembiczak* and *In re Zurko*.

Based on the foregoing reasons, Applicants submit that Hoebeke fails to teach or suggest all of the claimed elements as arranged in claim 2. Therefore, Hoebeke clearly cannot render the present invention obvious as recited in claim 2. Thus, Applicants submit that claim 2 is allowable, and further submit that new claims 10-12 are allowable as well, at least by virtue of their dependency from claim 2. Applicants respectfully request that the Patent Office withdraw the § 103(a) rejection of claim 2.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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Method to Divide Upstream Timeslots in a Time Division Multiple Access System, Related Line Terminator and Related Network Terminator

Background of the Invention

[0001] The present invention relates to a method to divide upstream timeslots in a time division multiple access system ~~as~~ and to a related line terminator and a related network terminator.

[0002] Similar methods and ~~Such a method and the~~ related network and line terminators are already known in the art, e.g., from the "*ITU-T Recommendation G.983.1 (10/98) section 8.3.5*". Therein, it is explained how grants should be included in Physical Layer Operation and Maintenance (PLOAM) cells for sending from a line terminator in a Passive Optical Network (PON) system to a plurality of network terminators of the system to indicate to the network terminators what upstream time slot they can use for transmission of data to the line terminator. The systems described in the recommendation are more specifically 155/155Mbit/sec and 622(downstream)/155Mbit/sec systems wherein upon recognition ~~detection~~ of its associated identity in a received grant, a network terminator can use a 155Mbit/s frame to send upstream data.

[0003] In order to support higher rates upstream, the same principle as described above could be used, i.e., sequential allocation of grants in the PLOAM cells to allow network terminators to use ~~f.i.~~ 622 Mbit/sec upstream

timeslots. However, such a system would not be compatible with a 622/155 Mbit/sec system since the frame structures would not map.

Summary of the Invention

[0004] An aspect ~~object~~ of the present invention is therefore to provide a method and a related line terminator and network terminator of the above known type but which would allow graceful upgrade of the existing systems to higher upstream speeds.

[0005] According to the invention, this aspect ~~object~~ is achieved by means of a method, a line terminator and a network terminator as described hereunder. In accordance with the inventive method, the line terminator includes, at predefined location ~~place~~ in a downstream data packet, a grant associated with one of the plurality of network terminators and the line terminator distributes the downstream packet.[[,]] Each ~~each~~ one of the network terminators transmits an upstream data packet in a predefined upstream timeslot in response to reception and recognition of its associated ~~own~~ grant.[[,]] The ~~and the~~ transmitting step comprises ~~includes the steps of:~~ transmitting an ~~said~~ upstream data packet in a lower order timeslot if the network terminator ~~in the event the one of the network terminators~~ is a lower order network terminator and the predefined location ~~place~~ is a predefined first location associated with non-idle grants.~~place;~~ The transmitting step further comprises transmitting an ~~the~~ upstream data packet in one of a plurality of higher order timeslots if the network terminator ~~in the event the~~

~~one of the network terminators~~ is a higher order network terminator and the predefined location ~~place~~ is a predefined first location associated with non-idle grants.~~place, with the~~ The higher order timeslots comprise ~~being subslots of~~ a predefined number of higher order subslots included in the predefined upstream timeslot.[[;]] The ~~and transmitting the~~ upstream data packet is transmitted in the higher order timeslot if the network terminator ~~in the event the one of the network terminators~~ is a higher order network terminator and the predefined location ~~redefined place~~ is a predefined second location associated with idle grants~~place~~.

[0006] The inventive line terminator distributes downstream data packets to a plurality of network terminators and comprises an insertion device that includes, ~~for including~~ in a downstream data packet at a predefined first location, ~~place~~ a grant associated with one of the plurality of network terminators.[[,]] If a network terminator is a higher order network terminator, the ~~the~~ insertion device includes, ~~in the event that one of the plurality of network terminators is a higher order network terminator, including~~ at a predefined second location ~~place~~ of the downstream data packet, a grant which is associated with the one of the plurality of network terminators.

[0007] The inventive network terminator comprises a detector that recognizes the grant associated with the network terminator ~~recognizing the network terminator's own grant~~ in a downstream packet sent from a line

terminator to the network terminator.[[,]] The network terminator further comprises ~~and~~ a transmitter for transmitting a data packet in a predefined upstream timeslot upon recognition of the associated ~~its~~ grant, wherein the network terminator is adapted to transmit upstream data packets at a higher order data packet rate.[[,]] The ~~the~~ detector is further adapted to recognize the associated ~~its own~~ grant at a predefined first location in the downstream data packet ~~place~~ and the transmitter is adapted, upon recognition by the deteector of the associated grant ~~at the predefined first place~~, to transmit a data packet in one of a plurality of higher order timeslots.[[,]] The ~~the~~ higher order timeslots comprise ~~being a subslot of~~ a predefined number of higher order subslots included in the predefined upstream timeslot.[[,]] The ~~and the~~ detector is ~~being~~ further adapted to recognize the associated ~~its own~~ grant at a predefined second location in the downstream data packet ~~place~~ and the transmitter is further adapted, upon recognition of the associated grant by the detector at the predefined second location in the downstream data packet~~place~~, to transmit the data packet in a the higher order timeslot.

[0008] In the above description, network terminators transmitting at higher speed, e.g., 622 Mbit/sec., are called higher order network terminators and network terminators sending at lower upstream speed, e.g., 155 Mbit/sec, are called lower order network terminators.

[0009] Indeed, by, in case of higher order network terminators, using in addition to the normally available grants, i.e., grants located at a predefined first place, called non-idle grants in the above Recommendation, additional grants, i.e., grants located at a predefined second place, in the above Recommendation called idle grants, and by adequately subdividing the existing upstream timeslots in subslots, higher rates can be supported whilst still being able to support the lower order network terminators. For example, ~~E.g.~~ in the case of a combination of a 622/155 Mbit/sec and a 622/622 Mbit/sec system, the network terminators sending at the former speed will upon receipt of a grant located at the predefined first place (non-idle grant place) use the complete 155 Mbit/sec upstream frame, whilst in the latter system, the network terminators upon receipt of a grant located either at a predefined first or at a predefined second place (idle grant place) will use a subframe being one-fourth ~~1/4 th~~ of the 155 Mbit/sec one.

[0010] Upstream frames used by lower order network terminators are called lower order timeslots, whilst slots used by a higher order network terminator are called higher order timeslots, these slots being in fact subslots of the upstream slots having the size of lower order timeslots.

[0011] It should further be noticed that the term "including", used in the claims, should not be interpreted as being limitative to the means listed thereafter. Thus, the scope of the expression "a device including means A and B" should not be limited to devices consisting only of components A and B. It

means that with respect to the present invention, the only relevant components of the device are A and B.

Brief Description of the Drawings

[0012] The above and other aspects ~~objects~~ and features of the invention will become more apparent and the invention itself will be best understood by referring to the following description of an embodiment taken in conjunction with the accompanying drawings wherein:

[0013] FIG. 1 shows a block scheme of an embodiment of a time division multiple access network wherein the method of the invention is used;

[0014] FIG. ~~Fig~~ 2 shows a downstream frame format and an upstream frame format used by the time division multiple access network of FIG. ~~Fig.~~ 1.

Detailed Description of the Invention

[0015] Referring to FIG. ~~Fig.~~ 1, a method to divide upstream timeslots used in a time division multiple access network in order to support 622/155 Mbit/sec as well as 622/622 Mbit/sec will be described. The working of the time division multiple access network will be explained by means of a functional description of the blocks shown in FIG. ~~Fig.~~ 1. Based on this description, implementation of the functional blocks in FIG. ~~Figure~~ 1 will be obvious to a person skilled in the art and will therefor not be described in detail.

[0016] The time division multiple access network includes a line terminator LT and a plurality of network terminators NT1, NT2, NT3, ...,

NT15, NT16. The line terminator LT is coupled to each network terminator NT1, NT2, NT3, ..., NT15, NT16 via the cascade connection of a common transmission link Lc and an individual user link L1, L2, L3, ..., L15, L16.

[0017] For example, the ~~The~~ time division multiple access network could be ~~is~~ an optical network transporting ~~f.i.~~ asynchronous transfer mode ATM cells over optical fibers from the line terminator LT to the network terminators NT1, NT2, NT3, ..., NT15, NT16. The time division multiple access network broadcasts network terminator identities, e.g., TEA1, TEA12, TEA16, TEA3, TEA7, ... or grants in downstream information packets from ~~form~~ the line terminator LT ~~LS~~ to the plurality of ~~by~~ network terminators NT1, NT2, NT3, ..., NT15, NT16. Upon recognition ~~detection~~ of its associated ~~own~~ identity, a network terminator is allowed to transfer a predetermined amount of upstream information packets in predetermined upstream timeslots to the line terminator LT. For example, [[:]] upon recognition by ~~detection of~~ network terminator NT3 of its associated ~~own~~ identity TEA3 in a downstream information packet, network terminator NT3 is allowed to send to the line terminator upstream information packets in predetermined timeslots.

[0018] The line terminator LT includes a packet formatting module PFM, inclusion means INC and queuing means Q. The queuing means Q is coupled to the inclusion means INC, which is included following this embodiment in the packet formatting module PFM.

[0019] Each network terminator, whereof only network terminator NT3 is shown in detail in order not to overload FIG. 1, ~~the figure,~~ includes recognition means REC and transmitting means TR.

[0020] The functions of each functional blocks of above will be described in the following paragraphs.

[0021] The line terminator allocates the time slots in a flexible and dynamically way. Indeed the upstream transfer capacity of the time division multiple access network is shared amongst the network terminators NT1, NT2, NT3, ..., NT15, NT16 based on their needed and requested upstream bandwidth to transmit upstream information. This needed upstream bandwidth is requested by the network terminators NT1, NT2, NT3, ..., NT15, NT16 to the line terminator LT. The requested bandwidth is translated by the line terminator LT in a predetermined number of allocated timeslots. This is realized by creating according the requested bandwidth of the network terminators NT1, NT2, NT3, ..., NT15, NTS16 a stream of transmit enable addresses or grants which are called in this application substation identities TEA1, TEA12, TEA16, TEA3, TEA7, ... and which correspond to the grants as specified in ITU-T Recommendation G.983.1. It has to be remarked that the detailed working of this allocation goes beyond the scope of this invention and is therefore not described. A detailed description of this working can be found in the published European patent application with publication number 0 544 975. The aim is the use of the stream of substation identities or grants

TEA1, TEA12, TEA16, TEA3, TEA7, ... to inform the network terminators NT1, NT2, NT3, ..., NT15, NT16 of the allocated timeslots. Following this embodiment the stream of substation identities or grants TEA1, TEA12, TEA16, TEA3, TEA7, ... is provided to the inclusion means INC by the queuing means Q.

[0022] Physical Layer Operation and Maintenance cells, otherwise known as ~~shortly~~ PLOAM cells, are also provided to the inclusion means INC. The inclusion means INC inserts in the PLOAM cells the grants and the PLOAM cells are then included in the downstream information packets. In order to explain the subject method, assume ~~it is supposed~~ that network terminator NT2 is a lower order network terminator, i.e., a network terminator sending at 155 Mbit/sec, whilst network terminator NT3 is a higher order network terminator sending at 622 Mbit/sec and that the downstream speed is 622 Mbit/sec.

[0023] Referring to FIG. ~~figure~~ 2, the downstream frame format and the upstream frame format used by the time division multiple access network of FIG. ~~Figure~~ 1 is shown. As it can be seen on FIG. ~~figure~~ 2, after 27 ATM cells, a PLOAM cell is inserted.

[0024] Since NT2 is ~~being~~ a lower order network terminator, the inclusion means INC inserts a grant TEA2 for this terminator in PLOAM 1 or PLOAM 2 at the location of non-idle grants as specified in ITU-T Recommendation G.983.1, version 10/98 on pages 39 and 41. It is supposed

here as shown in FIG. ~~Fig.~~2 that at a chosen point in time a grant for NT2 is included in PLOAM 1. Grants for NT3, which is a higher order network terminator, are included at the place of non-idle grants and of idle grants. It is supposed here that grants are inserted in PLOAMS 1 and 3. How many grants are included depends as mentioned earlier on the bandwidth requested by the network terminators. The queuing means Q provides the grants to be included to the including means INC in a sequence that ~~which~~ depends on the allocated bandwidth. Since the way in which the number and sequence of allocated grants is determined is outside of the scope of the current invention, this is not explained in detail. Examples of how this is done can be found in the earlier mentioned patent application and in EPA 0854659.

[0025] The PLOAM cell, after inclusion of the network terminator grants, is shown in FIG. ~~Fig.~~1 as PLOAM'. The PLOAM' cell is packed by the packet formatting module PFM into the downstream frame format and distributed to the plurality of network terminators. A network terminator has to recognize ~~detect~~ its associated ~~own~~ identity in a received PLOAM cell in order to be allowed to transfer an upstream information packet. This is realized by the recognition ~~detecting~~ means REC~~DET~~. The sending of the upstream information packets is done by the transmitting means TR. In order not to overload FIG. ~~figure~~ 1, only for network terminator NT3 are the recognition ~~detecting~~ means RCE~~DET~~(TEA3) and the transmitting means (TR) ~~is~~ shown. Taking as example the downstream frame of FIG. ~~Fig.~~2, NT2

first recognizes ~~recognises~~ its associated identity in a non-idle grant location of PLOAM_1, and being a lower order network terminator, it then transfers an information packet in a 155 Mbit/sec timeslot. The subsequent identity transferred by the line terminator is that of NT3, also in PLOAM 1. Upon recognition ~~detection~~ of its associated ~~own~~ identity in PLOAM 1 and knowing that it is an higher order network terminator, NT3 is allowed to transfer an upstream information packet in a subslot of an 155 Mbit/sec slot being one-fourth ~~1/4~~th-thereof. In order not to have gaps in the upstream frames, the line terminator has included a subsequent grant for NT3 in PLOAM_3 at the location of an idle grant. Upon recognition ~~detection~~ of its identity, NT3 sends an upstream information packet in a subsequent subslot as shown in FIG. ~~Fig.~~ 2. In this way, NT3 is enabled to send upstream information packets at 622 ~~322~~ Mbit/s, whilst NT2 sends at 155 Mbit/s, and only one frame format is used which is suited for both speeds.

[0026] It should be noted that although the above described network of the chosen embodiment is an asynchronous transfer mode ATM network the application of the present invention is not restricted to the field of ATM. Small modifications, evident to a person skilled in the art may be applied to the above described embodiment to adapt it to be method to divide upstream timeslots integrated in other time division multiple access networks wherein physical layer operation and maintenance parts are predefined in downstream information packets.

[0027] While the principles of the invention have been described above in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation on the scope of the invention, as defined in the appended claims.